

3 Alternatives

The alternatives presented in this document were developed according to requirements of the National Environmental Policy Act (NEPA). The best available science and information was applied to describe the effects of the alternatives.

The alternatives presented are programmatic in nature, and not site specific. Since virtually all of the vegetated lands within the parks are subject to the effects of naturally occurring fire, and since the exact locations where those events might occur are unknown, the alternatives and the analysis of effects that follow in Chapter 5 apply to all vegetated parklands.

DEVELOPMENT OF ALTERNATIVES

After compilation of all scoping comments, the interdisciplinary team developed a reasonable range of alternatives that responded to park goals and addressed major issues and concerns. Six alternatives were initially crafted to respond to the full range of comments.

The six alternatives were structured around the primary tools available to accomplish program goals and objectives. This structure responds to the wide range of comments offered in scoping. Most people who commented agreed with the need for proactive fire management and understood the role of fire as an essential natural process needed to perpetuate park ecosystems. Many comments focused on the tools they preferred the park use to implement a program (prescribed fire, wildland fire use, etc.). For example, comments ranged from “all natural starts should be allowed to burn unimpeded” to “prescribed fires are much less impacting than bulldozers carving control lines.” Consequently alternatives were developed that responded to the continuum of views expressed by the public. The initial six alternatives were:

- Alternative 1 – No Action (Current Program)
- Alternative 2 – Prescribed Fire Dominated
- Alternative 3 – Wildland Fire Use Dominated
- Alternative 4 – Multi- Strategy Program (Preferred Alternative)
- Alternative 5 – Mechanical Fuel Reduction Dominated
- Alternative 6 – Wildland Fire Suppression Dominated

Once the six alternatives were defined and described, a preliminary analysis was conducted. The initial analysis highlighted two alternatives (5 and 6) that, for a variety of reasons, were not capable of achieving fundamental park goals. Their inability to achieve goals was primarily due to constraints. For example, Alternative 5 is constrained by the presence of designated and proposed wilderness and consequent limitations on activities in those areas outside the direct control of park management. Alternative 6 is constrained by ecological considerations such as the inability to protect and maintain the health of giant sequoia groves through aggressive fire suppression alone.

ALTERNATIVES CONSIDERED BUT REJECTED

As a result of an initial analysis, Alternatives 5 and 6 were considered but rejected. See Appendix A for additional details.

The primary considerations that led to the elimination of these two alternatives were:

- An analysis of the maximum acres treatable under each of the two eliminated alternatives showed that optimum accomplishments under those alternatives still fall well short of achieving natural resource and fire management goals. Ecologically based desired future conditions for the resources have been developed, and the level of activity needed to move toward those conditions over time has been established through a comparison of existing conditions and desired conditions. See Chapter 4, Affected Environment, for additional details regarding that analysis.
- Relating specifically to Alternative 5 (Mechanical Fuel Reduction Dominated), the designation of 96% of the park as proposed or designated wilderness is a primary constraint on mechanical fuel reduction, limiting its application to less than 4% of parklands (approximately 35,000 acres). Even within the non- wilderness portion of the parks, many areas are in developed areas such as campgrounds or lodging where mechanical methods are already applied to manage tree hazards, or are too steep or otherwise environmentally sensitive to apply mechanical treatments to any great degree. Many giant sequoia groves are located in remote wilderness areas precluding proactive management of those remote groves under Alternative 5, placing them at substantial risk. Wilderness and other sensitive area issues aside, serious questions remain as to whether the outcomes of large- scale mechanical fuel treatments could produce ecological effects that sufficiently mimicked the effects of fire to meet park goals.
- Relating to Alternative 6 (Full Suppression of all Fires), while some wildfires under the alternative would create local beneficial ecological effects at times, most areas of the park would be expected to suffer negative effects. Negative effects would result from areas accumulating unnaturally high fuel loads (which would eventually include much of the parklands under these alternatives) exposing those acres to large- scale high- intensity catastrophic fire events that would be damaging to the natural resources including giant sequoia groves. These high intensity fire events would be hazardous and expensive to manage, compromise firefighter and public safety, and create long duration smoke events at random times. Aggressive suppression actions, including the creation of firelines, fire camps, and helispots, would have serious cumulative effects on park resources and wilderness conditions.

The interdisciplinary planning team forwarded the conclusions of the preliminary assessment to the parks' Environmental Management Committee for review and advice. The committee ultimately recommended that Alternatives 5 and 6 be removed from further analysis since they could not be implemented in any fashion that would result in significant resolution of issues, nor would they fulfill fundamental fire management and natural resource objectives. The Superintendent concurred with this determination in a memo dated April 19, 2000.

Alternative 1 represents the current fire management program. Like Alternatives 5 and 6, Alternative 1 also fails to fully achieve fire management goals as they are currently understood, but it was retained in the final assessment as the “no action” alternative for comparison purposes. The current program was developed 10 years ago using the best available research at the time. Over the past decade using new spatial analysis tools and research results, the parks have applied new findings on natural fire regimes to refine the goals and objectives guiding the fire management program. Fire management actions in the current plan fall short of the levels of activity now understood to be necessary to fully restore ecosystem function and provide for safety. The current program does move toward ecosystem restoration and maintenance in select areas of the parks, but at a rate insufficient to fully restore all parklands.

DESCRIPTION OF ALTERNATIVES

Four alternatives are fully analyzed in this environmental assessment. To increase understanding of the preferred alternative, Alternative 4, the companion *Fire and Fuels Management Plan, Sequoia and Kings Canyon National Parks 2002* describes how the program would be implemented.

Definition of Terms

Numerous terms are used throughout this document that describe the different tools used by fire managers. These tools are described in depth in the companion *Fire and Fuels Management Plan* (Chapter 3). Since the alternatives in this assessment are also organized around these tools, it is important to understand the terminology:

- 1) Prescribed Fire – management- ignited fires
- 2) Wildland Fire Use –the management of unplanned ignitions, such as lightning-caused fires for resource benefit. Also referred to as simply “fire use”
- 3) Wildland Fire Suppression –the suppression of an unwanted wildland fire from any ignition source, natural or human- caused. Also referred to as “fire suppression,” or simply “suppression”
- 4) Mechanical Fuel Reduction –reducing hazardous fuels with equipment, such as chainsaws, or piling and burning woody debris. Also referred to as “mechanical projects,” or “mechanical treatments”

The following table (Table 3- 1) summarizes the alternatives.

Table 3-1 – Summary of Alternatives

Alt 1 No Action (Current Program)	Alt 2 Prescribed Fire	Alt 3 Wildland Fire Use	Alt 4 Multi-Strategy (Preferred Alternative)
<p>General Description</p> <p>The No Action alternative would continue the current direction and accomplishments of the fire management program that has been in place since 1968, including a revision written in 1989 to meet post-Yellowstone fire policy requirements.</p> <p>This alternative would utilize the full range of fire management strategies, including prescribed fire, fire use, mechanical treatments, and fire suppression activities where appropriate.</p>	<p>General Description</p> <p>Under Alternative 2 the program would focus on the intentional use of fire through the application of prescribed fire to meet ecological restoration and maintenance objectives, and to reduce hazardous levels of fuels throughout the park.</p> <p>All other fires would be suppressed, including natural ignitions.</p> <p>Limited mechanical fuel reduction would occur in and around developments and along park boundaries to buffer these sites from unplanned events or to aid in prescribed fire management.</p>	<p>General Description</p> <p>Alternative 3 would focus on managing unplanned fires to accomplish hazard fuel and resource management goals. Few, if any, unplanned fires in the park would be suppressed unless they presented an immediate hazard to human safety, were likely to affect non-park lands, or where resources to manage the long-term events would not be available.</p> <p>A very limited amount of prescribed burning would occur only to facilitate the use of natural ignitions.</p> <p>Limited mechanical fuel reduction would occur in and around developments and along park boundaries to buffer these sites from unplanned events.</p>	<p>General Description</p> <p>Alternative 4 would use a full range of strategies to achieve hazard fuel and resource management goals. More acres would be targeted for treatment each year. The alternative is similar to the No-Action alternative, but would be more extensive, and focus on restoration and maintenance of natural resource and fuel conditions.</p> <p>Prescribed fire and fire use would increase to a level that best analysis shows would result in full restoration and maintenance of fire in park ecosystems.</p> <p>Limited mechanical fuel reduction would occur in and around developments and along park boundaries to buffer these sites from unplanned events or to aid in prescribed fire management.</p>

Alt 1 No Action (Current Program)	Alt 2 Prescribed Fire	Alt 3 Wildland Fire Use	Alt 4 Multi-Strategy (Preferred Alternative)
<p>Prescribed Fire</p> <p>Prescribed fire projects would focus on hazard fuel reduction around developments and park boundaries, and in high priority resource areas such as giant sequoia groves.</p> <p>Other projects necessary to restore and maintain ecosystem structure and function would be accomplished as time and funds allowed.</p>	<p>Prescribed Fire</p> <p>Prescribed fire would be extensively used as the primary strategy to both restore and maintain ecosystem function and to reduce hazard fuels throughout the park.</p> <p>Prescribed fire size and extent would simulate, to the extent possible and known, the historic fire regime.</p>	<p>Prescribed Fire</p> <p>Prescribed fire may be used to replace unplanned ignitions that were suppressed.</p> <p>This action would occur inside the park only when modeling of suppressed ignitions show that a fire resulting from the ignition would likely have had significant positive resource impacts.</p> <p>Prescribed fire would not be used to reduce areas of unnaturally heavy fuel buildup prior to allowing unplanned fires to burn through. Some use of prescribed fire would be applied to secure firelines or implement holding actions during fire use projects.</p>	<p>Prescribed Fire</p> <p>Increased use of prescribed fire would occur over the next 25 years with up to 10,000 acres per year treated. Most of the increase in burning would result from prescribed fire projects implemented to restore natural fuel load and reduce stand density.</p> <p>The increased prescribed burning activity would focus on the portions of the ecosystem with the greatest deviation from natural conditions, which represent approximately 109,000 acres of the parks.</p> <p>Other prescribed burn projects would be implemented to maintain restored areas.</p>

Alt 1 No Action (Current Program)	Alt 2 Prescribed Fire	Alt 3 Wildland Fire Use	Alt 4 Multi-Strategy (Preferred Alternative)
<p>Wildland Fire Use</p> <p>Many unplanned fires in zones that have been restored, or that are currently in a natural condition, would be managed for resource benefit.</p> <p>As new areas are restored to natural fuel load, structure, and function, management of those areas may change from prescribed fire dominated to fire use dominated to continue to shape the ecosystems into the future.</p>	<p>Wildland Fire Use</p> <p>All unplanned fires would be suppressed in a manner consistent with firefighter safety.</p>	<p>Wildland Fire Use</p> <p>Most unplanned fires would be allowed to burn within park boundaries.</p>	<p>Wildland Fire Use</p> <p>Most unplanned fires in areas that have been restored or that are currently in a natural condition would be managed for resource benefit. Under carefully prescribed conditions, wildland fire use ignitions may also be managed to meet restoration objectives.</p> <p>As new areas are restored to natural fuel load, structure, and function, management of those areas may change from prescribed fire dominated to fire use dominated to continue to shape the ecosystems into the future.</p>
<p>Wildland Fire Suppression</p> <p>All unwanted natural ignitions would be suppressed.</p>	<p>Wildland Fire Suppression</p> <p>All unplanned fires would be suppressed.</p>	<p>Wildland Fire Suppression</p> <p>Very few unplanned fires would be suppressed.</p>	<p>Wildland Fire Suppression</p> <p>All unwanted fires would be suppressed.</p>
<p>Mechanical Fuel Reduction</p> <p>Limited mechanical fuel reduction would occur in developed areas and along boundaries.</p>	<p>Mechanical Fuel Reduction</p> <p>Limited mechanical fuel reduction would occur in developed areas and along boundaries.</p>	<p>Mechanical Fuel Reduction</p> <p>Limited mechanical fuel reduction would occur in developed areas and along boundaries.</p>	<p>Mechanical Fuel Reduction</p> <p>Limited mechanical fuel reduction would occur in developed areas and along boundaries.</p>

ANNUAL PROGRAM ACCOMPLISHMENTS BY ALTERNATIVE

The following tables (Tables 3- 2 and 3- 3) predict *average* annual accomplishments of each alternative at two different benchmarks in time – 10 years and 25 years. Table 3- 4 depicts the extent of the average program accomplishment by vegetation type. Acres projected in the tables reflect expected accomplishments averaged over long periods of time. Past experience has shown that due to large- scale climatic variations such as El Niño and La Niña, fire activity varies

widely from year to year. Therefore the numbers included in these tables are only intended for comparison between alternatives over long time periods, and not as specific annual targets to be achieved. These projections, representative of average accomplishments expected for each alternative, will be used as the basis for analysis purposes throughout the document.

To develop these projections, the interdisciplinary planning team evaluated the best available information on pre- Euroamerican fire cycles. That information provided the best estimate of ecological targets needed to minimally restore natural ecosystem condition and function. Evaluation of past fire program accomplishments allowed an assessment of operational requirements necessary to meet the targets. (See discussion of Fire Return Interval Departure, FRID, in Chapter 4- D.)

Under each alternative, the team estimated the acreage that would be treated using each tool (prescribed fire, wildland fire use, wildland fire suppression, and mechanical fuel reduction) for each vegetation type since each type in the park has a unique natural fire cycle.

One assumption was that with any increase in prescribed fire or wildland fire use there would also be the possibility of an increase in the number of escapes or unwanted events. This increase is reflected in the suppression figure for each alternative. The increase in risk of escapes is most obvious in the wildland fire use alternative (Alternative 3) where it is assumed that fewer acres would be pre- treated with prescribed fires to facilitate management of these random unplanned events.

The two different timeframes (10 and 25 years) were developed to assess the effect of program changes over time. The overall acres treated by each alternative remain relatively constant between the two temporal benchmarks for each alternative, however, the mix of acres treated under each tool change. For example, under Alternative 3, acres that would require suppression action decrease between 10 years and 25 years while the wildland fire use acres increase in that same timeframe. This shift in tools over time results from Alternative 3's proactive treatment and restoration of natural fuel conditions through the liberal management of unplanned ignitions supplemented by some prescribed fire. The different timeframes also allow an analysis of changes in smoke production over time as a result of different management alternatives.

Acres for Alternative 1 are based on actual accomplishments of the parks fire management program over the past 10- 25 years. The acre estimates for other alternatives were developed with the objective of treating the fewest number of acres each year while still maintaining natural ecosystem function within the range of the natural fire regime. Missing from the acreage estimates, because it is nearly impossible to model, is a reflection of increased risk of large catastrophic wildland fire events such as those experienced by Yosemite National Park several times over the past 15 years, and by the Sequoia National Forest in the summers of 2000 and 2002. As program accomplishments fall short of minimum goals, the risk of this type of unwanted and destructive fire event increases. This concept is developed fully in Chapter 5.

The parks acknowledge that there are numerous factors that could prevent the full attainment of fire management achievements in any given year, or through time. Limited funding, diversion of fire staff to local or national suppression priorities, and air quality constraints all may result in fewer acres treated. In such a case, the program will most likely resemble Alternative 1 – No Action in both accomplishment and environmental effect.

Large variations in the size and number of fire events, both in modern times and in reconstructed pre- Euroamerican fire regimes for the parks illustrate the variability that can be expected year to year. For example, in a reconstruction of the East Fork Kaweah fire regime, the average fire size over a 200- year period was approximately 240 acres. During extended droughts that reoccur several times each century, large fire events in the 6,000- 10,000 acre range are found (Caprio 2000). Modern experience shows a similar pattern in the size of natural fire events with the largest natural fire event in the parks, the Ferguson Fire at 10,420 acres in 1977.

Table 3-2 – Projected annual program achievement by alternative over first 10 years.

Treatment Acres per year	Alt 1 No Action (Current Program)	Alt 2 Prescribed Fire	Alt 3 Wildland Fire Use	Alt 4 Multi-Strategy (Preferred Alternative)
Mechanical Fuel Reduction	4	10	10	10
Wildland Fire Suppression	561	1311	3167	1379
Prescribed Fire	2486	13965	150	7300
Wildland Fire Use	1227	0	10489	6638
Grand Totals	4278	15286	13816	15327

Table 3-3 – Projected annual program achievement by alternative at 25 years.

Treatment Acres per year	Alt 1 No Action (Current Program)	Alt 2 Prescribed Fire	Alt 3 Wildland Fire Use	Alt 4 Multi-Strategy (Preferred Alternative)
Mechanical Fuel Reduction	10	16	30	16
Wildland Fire Suppression	886	726	2245	986
Prescribed Fire	1478	14490	164	2225
Wildland Fire Use	1293	0	11349	12055
Grand Totals	3667	15232	13788	15282

Table 3-4 – Estimated Annual Acres by Alternative & Vegetation Type – 10-Yr. Targets

Acres by:	Alt 1 No Action (Current Program)	Alt 2 Prescribed Fire	Alt 3 Wildland Fire Use	Alt 4 Multi-Strategy (Preferred Alternative)
Red Fir				
Mechanical	0	0	0	0
Suppress	6	10	20	15
Prescribed	390	1900	0	800
Fire Use	181	0	1900	1100
Sub total	577	1910	1920	1915
Lodgepole				
Mechanical	1	1	1	1
Suppress	38	10	20	20
Prescribed	50	440	0	140
Fire Use	152	0	440	300
Sub total	241	451	461	461
Xeric Conifer				
Mechanical	0	0	0	0
Suppress	3	33	40	30
Prescribed	99	590	0	200
Fire Use	153	0	590	390
Sub total	255	623	630	620
Montane Chaparral				
Mechanical	0	0	0	0
Suppress	10	20	120	80
Prescribed	52	350	0	50
Fire Use	60	0	220	220
Sub total	122	370	340	350
Sub-alpine Conifer				
Mechanical	0	0	0	0
Suppress	1	5	5	1
Prescribed	0	125	0	0
Fire Use	188	0	125	188
Sub total	189	130	130	189
Meadow				
Mechanical	0	0	0	0
Suppress	0.1	0.1	10	0.1
Prescribed	12	160	0	60
Fire Use	15	0	140	100
Sub total	27.1	160.1	150	160.1
Foothills Chaparral				
Mechanical	1	1	1	1
Suppress	118	60	180	70
Prescribed	190	240	100	225
Fire Use	0	0	20	5
Sub total	309	301	301	301

Foothills Hardwood

Mechanical	0	0	0	0
Suppress	124	100	200	100
Prescribed	113	1000	50	1000
Fire Use	0	0	20	0
Sub total	237	1100	270	1100

Mid Elevation Hardwood

Mechanical	0	0	0	0
Suppress	1.4	3	2	3
Prescribed	68	290	0	275
Fire Use	14	0	14	15
Sub total	83.4	293	16	293

Ponderosa Pine Mixed Conifer

Mechanical	0	3	3	3
Suppress	98	700	2200	700
Prescribed	747	5000	0	2500
Fire Use	80	0	3500	2500
Sub total	925	5703	5703	5703

White Fir Mixed Conifer

Mechanical	1	1	1	1
Suppress	150	350	350	350
Prescribed	581	3400	0	1700
Fire Use	328	0	3400	1700
Sub total	1069	3751	3751	3751

Giant Sequoia Mixed Conifer

Mechanical	1	1	1	1
Suppress	11	20	20	10
Prescribed	184	470	0	350
Fire Use	56	0	120	120
Sub total	252	491	141	481

Totals	Alt 1 No Action (Current Program)	Alt 2 Prescribed Fire	Alt 3 Natural Fire	Alt 4 Multi-Strategy (Preferred Alternative)
Mechanical	4	10	10	10
Suppress	561	1311	3167	1379
Prescribed	2488	13975	160	7310
Fire Use	1227	0	10489	6638
Grand Totals*	4278	15286	13816	15327

Table 296-• Totals rounded up to next whole number.

Table 3-5 – Estimated Annual Acres by Alternative & Vegetation Type – 25-Yr. Targets

Acres by:	Alt 1 No Action (Current Action)	Alt 2 Prescribed Fire	Alt 3 Natural Fire	Alt 4 Multi-Strategy (Preferred Alternative)
Red Fir				
Mechanical	0	0	0	0
Suppress	34	10	10	10
Prescribed	179	1900	0	100
Fire Use	247	0	1900	1800
Sub total	460	1910	1910	1910
Lodgepole				
Mechanical	1	1	1	1
Suppress	15	5	5	5
Prescribed	20	440	0	25
Fire Use	181	0	440	410
Sub total	217	446	446	441
Xeric Conifer				
Mechanical	0	0	0	0
Suppress	33	5	5	5
Prescribed	54	590	0	25
Fire Use	92	0	590	560
Sub total	179	595	595	590
Montane Chaparral				
Mechanical	0	0	0	0
Suppress	61	10	60	10
Prescribed	41	350	0	50
Fire Use	78	0	280	300
Sub total	180	360	340	360
Sub-alpine Conifer				
Mechanical	0	0	0	0
Suppress	4	5	5	5
Prescribed	0.5	125	0	0
Fire Use	85	0	125	125
Sub total	89.5	130	130	130
Meadow				
Mechanical	0	0	0	0
Suppress	4	1	10	1
Prescribed	6	160	0	20
Fire Use	14	0	140	140
Sub total	24	161	150	161
Foothills Chaparral				
Mechanical	1	1	1	1
Suppress	123	60	170	65
Prescribed	172	240	100	225
Fire Use	0.4	0	30	10
Sub total	296.4	301	301	301

Foothills Hardwood

Mechanical	0	0	0	0
Suppress	87	100	200	100
Prescribed	79	1000	50	1000
Fire Use	2	0	20	0
Sub total	168	1100	270	1100

Mid Elevation Hardwood

Mechanical	6	6	20	6
Suppress	37	0	0	250
Prescribed	13	290	14	30
Fire Use	14	0	14	15
Sub total	70	296	48	301

Ponderosa Pine Mixed Conifer

Mechanical	0	6	6	6
Suppress	247	350	1500	350
Prescribed	386	5350	0	400
Fire Use	152	0	4200	5000
Sub total	785	5706	5706	5756

White Fir Mixed Conifer

Mechanical	1	1	1	1
Suppress	216	175	250	175
Prescribed	394	3575	0	250
Fire Use	406	0	3500	3325
Sub total	1017	3751	3751	3751

Giant Sequoia Mixed Conifer

Mechanical	1	1	1	1
Suppress	25	5	30	10
Prescribed	133	470	0	100
Fire Use	22	0	110	370
Sub total	181	476	141	481

Totals	Alt 1 No Action (Current Program)	Alt 2 Prescribed Fire	Alt 3 Natural Fire	Alt 4 Multi-Strategy (Preferred Alternative)
Mechanical	10	16	30	16
Suppress	886	726	2245	986
Prescribed	1478	14490	164	2225
Fire Use	1293	0	11349	12055
Grand Totals*	3667	15232	13788	15274

* Totals rounded up to next whole number.

SCOPE OF INDIVIDUAL PROJECTS

Individual project size would vary based on weather, fuel load, controllability factors, expected smoke production, and proximity to park boundaries, developments, and smoke sensitive areas. All projects that include fire would be approved by the San Joaquin Valley Unified Air Pollution Control District, and would be managed in accordance with applicable laws and regulations. (Table 3- 6 provides a summary of the following information.)

Mechanical Fuel Reduction Projects

In some areas of the parks, fuels would be reduced through direct removal. Typically this would entail piling and burning the excess fuel on the project site at favorable times of the year and with limited smoke impact. Some fuels may be chipped and left on site. Mechanical projects may include the removal of some live shrubs and smaller trees that would otherwise provide ladders for fire to move into larger tree canopies. Mechanical treatments would typically be used within 200 feet of structures and along park boundaries to provide a fire- safe zone between developments and the surrounding wildlands.

Alternatives 1, 2, and 4, propose mechanical projects that would typically be less than 30 acres in size, with the majority of projects ranging from 1- 5 acres. Under Alternative 3, mechanically created fuel buffers would be larger than under the other alternatives to provide fire protection while increasing the use of wildland fire use in the vicinity of developments and along boundaries. Mechanical projects under this alternative would have a maximum size of 50 acres.

Under all alternatives, larger projects may be implemented if the perimeter of a developed area or boundary to be buffered (e.g. Wilsonia) is large, but in no cases would the width of the action exceed 200'. To maintain their effectiveness, mechanically treated areas that would serve as reduced fuel buffers would require re- treatment every 5- 10 years in shrub and forest vegetation, and annually in grassland communities

As part of planning for mechanical projects, individual sites would be assessed by qualified park staff for the presence of special status species and for significant cultural resources. Site specific recommendations for protection of sensitive resources would be incorporated into project planning and implementation, and the project would proceed if there were a determination of no adverse affect of special status species or on significant cultural resources.

Should “adverse effect” or “incidental take” of any threatened or endangered species be expected by implementation of site specific projects, supplemental environmental compliance would be pursued.

Wildland Fire Suppression

Fire suppression would occur at varying levels under all alternatives. Suppression include the full range of tactics: confine, contain, and control. All suppression actions would follow minimum impact suppression guidelines (Addendum – *Fire and Aviation Management Operations Guide*) and would be followed up with appropriate burned area emergency rehabilitation of firelines and other effects of the suppression action.

Expected sizes of suppression projects range from extremely small for the large majority of ignitions (<0.1 acre) to large scale encompassing thousands of acres. Several recent suppression fires on public lands north and south of these parks have exceeded 50,000 acres in size.

When determining suppression tactics, collateral damage to park resources as a result of the proposed suppression action would be considered. Least cost or minimum acres would not be the sole determining factors in choosing tactics. Considering public and firefighter safety first, tactics selected would be those which create the least collateral damage.

Suppression actions are considered “emergency actions” under NEPA and are exempt from requirements prior to implementation. In these circumstances, issues of life safety for firefighters and the public take precedence over all other resource values (NPS Directors Order- 12).

Prescribed Fire Projects

Prescribed fire would be used in all alternatives. Alternative 2 would place the most emphasis on this tool and Alternative 3 the least. Alternative 4 would initially be dominated by prescribed fire; transitioning over time to a predominance of wildland fire use as parklands were restored through prescribed fire and mechanical treatments. Alternative 1 would use prescribed fire at similar rates as in the past, focusing only on the highest priority areas.

Prescribed fire projects under Alternative 1 would continue to range from 0.5 to 6,000 acres. Projects under Alternative 2 would include areas up to 10,000 acres in size to simulate, to the extent feasible, the scale and pattern of natural fire events. Alternative 3 would have very few prescribed fire projects, and those would generally be under 100 acres in size. An exception to this size constraint for Alternative 3 would occur when a prescribed fire ignition was used to replace a suppressed natural ignition in the same year that would have grown larger than 100 acres under modeled circumstances. In that rare case, prescribed fires may be allowed to grow to the expected modeled extent of the original ignition.

Under Alternative 4, prescribed fires would be used in conjunction with unplanned ignitions and mechanical treatments. Prescribed fires would be implemented that would fall within the range of natural fire sizes to restore a natural pattern and mosaic to the landscape. Projects would vary in size from several acres to several thousand acres. Over time as more parkland was restored to natural function and structure, this strategy would decrease in importance and be replaced by wildland fire use projects.

Wildland Fire Use Projects

Alternatives 1, 3, and 4 include wildland fire use projects. Alternative 2 would suppress all unplanned ignitions and use prescribed fire parkwide instead to achieve ecosystem restoration and maintenance goals. Alternatives 1 and 4 manage wildland fire use primarily in areas substantially unaffected by past fire suppression or that have been previously restored through the use of prescribed fire. Alternative 3 uses wildland fire use projects to both maintain unaffected or previously restored parklands and as the primary method to restore fire onto remaining lands.

Wildland fire use projects are, by definition, random unplanned events. Park fire records and experience shows that most unplanned ignitions (>90%) remain quite small (<0.1 acres). The remaining ignitions may grow to an average of 240 acres, while very few ignitions each century may grow to 10,000 acres or more. The growth of most unplanned ignitions in the parks are limited in size by terrain features such as river canyons and rocky ridges that provide numerous natural fire breaks. While projects up to 20,000 acres in size are unlikely, they are conceivable in some areas of continuous fuels.

SCOPE OF ANNUAL PROGRAMS

Each year park managers would develop a detailed plan describing projects that are planned for implementation in that year and for four additional out- years. Individual projects would fall within the scope of the project descriptions above. Table 3- 6 outlines the limitations or constraints that would exist for both projects and annual programs.

Table 3-6 – Summary - Scope of Individual Projects and Annual Program

Alt 1 No Action (Current Program)	Alt 2 Prescribed Fire	Alt 3 Wildland Fire Use	Alt 4 Multi-Strategy (Preferred Alternative)
Mechanical Fuel Reduction Individual Project Size: - 5 acre maximum Number of Projects/Year: - Up to 15	Mechanical Fuel Reduction Individual Project Size: - 30 acre maximum Number of Projects/Year: - Up to 15	Mechanical Fuel Reduction Individual Project Size: - 50 acre maximum Number of Projects/Year: - Up to 15	Mechanical Fuel Reduction Individual Project Size: - 30 acre typical Number of Projects/Year: - Up to 15
Prescribed Fire Projects Individual Project Size: - 6,000 acre maximum Number of Projects/Year: - Up to 10	Prescribed Fire Projects Individual Project Size: - 10,000 acre maximum Number of Projects/Year: - Up to 20	Prescribed Fire Projects Individual Project Size: - 100 acre maximum Number of Projects/Year: - Up to 5	Prescribed Fire Projects Individual Project Size: - 8,000 acre maximum Number of Projects/Year: - Up to 15 - Total prescribed fire acres not to exceed maximum expected under natural fire regime.

Alt 1 No Action (Current Program)	Alt 2 Prescribed Fire	Alt 3 Wildland Fire Use	Alt 4 Multi-Strategy (Preferred Alternative)
Wildland Fire Use Projects Individual Project Size: - 90% < 0.1 acre - Up to 10,000 acres Number of Projects/Year: - Variable	Wildland Fire Use Projects Individual Project Size: - None Number of Projects/Year: - None	Wildland Fire Use Projects Individual Project Size: - 90% < 0.1 acre - Up to 20,000 acres Number of Projects/Year: - Up to 50	Wildland Fire Use Projects Individual Project Size: - 90% < 0.1 acre - Up to 20,000 acres Number of Projects/Year: - Up to 40
Wildland Fire Suppression Actions Individual Project Size: - Any size Number of Projects/Year: - Variable/Unknown	Wildland Fire Suppression Actions Individual Project Size: - Any size Number of Projects/Year: - Variable/Unknown	Wildland Fire Suppression Actions Individual Project Size: - Any size Number of Projects/Year: - Variable/unknown	Wildland Fire Suppression Actions Individual Project Size: - Any size Number of Projects/Year: - Variable/Unknown

ENVIRONMENTALLY PREFERRED ALTERNATIVE

The environmentally preferred alternative is defined by the Council on Environmental Quality as the alternative that best meets the following criteria or objectives, as set out in section 101 of the *National Environmental Policy Act*:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Ensure for all Americans a safe, healthful, productive, and aesthetically and culturally pleasing surrounding.
- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.
- Preserve important historic, cultural, and natural aspects of our national heritage and maintain, whenever possible, an environment that supports diversity and variety of individual choice.
- Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities.
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

The environmentally preferred alternative is the alternative that causes the least damage to the biological and physical environment – the alternative that best protects, preserves, and enhances historic, cultural, and natural resources. This discussion summarizes the extent to which each alternative meets section 102(1) of the *National Environmental Policy Act*, which asks that

agencies administer their own plans, regulations, and laws so that they are consistent with the policies outlined above to the fullest extent possible.

Alternative 1 in this *Environmental Assessment* would not “attain the widest range of beneficial uses of the environment without degradation....” or “preserve important natural aspects of our national heritage....” by only focusing on small, focused areas of the parks. It fails to adequately address current degraded natural resource conditions across a majority of the parks. Alternative 2 addresses the two requirements listed above better than alternative 1 by encompassing a larger area of the parks, but does so at the expense of the wilderness character and may result in unintended or undesirable consequences on ecosystem function and health. Alternative 3 has the potential to restore and maintain many portions of the ecosystem, though it also comes with a higher risk of catastrophic fire and as a result has a greater potential to damage park natural and cultural heritage than other alternatives. Alternative 4 is the environmentally preferred alternative since it has the greatest chance of restoring natural resource conditions across the parks without creating collateral undesired or unintended natural or cultural resource consequences.

